

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2003

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

During the third quarter of 2003, one fused aluminum oxide production plant was closed on July 18, 2003. This left only one company with one plant operating in Canada producing fused aluminum oxide. The total production during the third quarter of 2003 was a small amount of regular-grade crude fused aluminum oxide.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide through August 2003 were 73,200 metric tons (t) valued at \$19.9 million, or an average of \$271 per ton. About 63% of the imports came from China, 18% from Venezuela, 18% from Canada, and 1% from other countries. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide through the month of August 2003 reached 31,000 t valued at \$25.5 million, or an average of \$825 per ton. The top five sources of the refined and ground imports were China (38%), Germany (18%), Brazil (14%), Austria (12%), and Hungary (5%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory-grade material as well as abrasive grain. U.S. exports of fused aluminum oxide through August 2003 were 7,620 t. The exports were valued at \$21.2 million, or \$2,790 per ton. Germany received 33% of the exports that were shipped; Canada 28% and Mexico 13%.

The Department of Defense (DOD) stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the third quarter of 2003, the DOD reported

sales of 2,140 t of fused aluminum oxide abrasive grain valued at \$571,000. At the end of the quarter, NDS reported 13,800 t of fused aluminum oxide abrasive grain with an estimated value of \$6.5 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2003). No further stockpiling of crude fused aluminum oxide by the DOD is anticipated. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain will be sold by the end of 2004.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the third quarter of 2003 was 10,000 t of abrasive-grade silicon carbide with an estimated value of \$5.1 million. This total production figure has been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through August 2003 were 82,200 t valued at \$28.3 million; imports from China alone were 70,000 tons valued at \$21 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$597 per ton; the average price of Chinese crude was \$301 per ton. U.S. imports of refined and ground silicon carbide for the same period were 21,700 t valued at \$21.6 million, or an average of \$996 per ton. During the period, China accounted for 85% of the crude material and 43% of the refined and ground material.

U.S. exports of crude silicon carbide through August 2003 were reported to be 1,020 t with a value of \$2.7 million. Exports of refined and ground silicon carbide were 7,600 t valued at \$5.1 million. About 90% of the crude material was shipped to Mexico, Norway, Japan, Switzerland and Germany in decreasing order. Most of the refined material went to Canada, Australia, and Mexico in decreasing order.

The NDS has sold all of the silicon carbide in the stockpile, and no further stockpiling is anticipated.

Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the third quarter of 2003, six companies produced 49,200 t of steel shot and grit, a decrease relative to the same period in 2002. At least one of the companies produced shot and grit from reclaimed material. Total third quarter production was valued at \$21.9 million, or an average of \$444 per ton. Total annual estimated output in 2003 is expected to be 200,000 t valued at \$89.9 million; 2002 output was 201,000 t valued at \$91 million.

Shipments of steel shot and grit in the third quarter of 2003 were 57,400 t valued at \$27 million, or an average of \$470 per ton, compared with shipments during the third quarter of 2002,

which were 57,900 t valued at \$27 million for an average of \$466 per ton.

Third quarter production of other types of metallic shot and grit (primarily cut wire shot) was 334 t valued at \$1.2 million. Six companies produced shot.

Imports of all types of metallic shot and grit through August 2003 were 11,100 t valued at \$6.4 million for an average of \$575 per ton. Canada was the largest supplier, accounting for 63% of the tonnage imported.

Exports of all types of metallic abrasives through August 2003 were 14,400 t valued at \$9.4 million, or an average of \$650 per ton. Shipments to Canada accounted for 53% of the exports; an additional 41% was shipped to Mexico.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons, unless otherwise specified)

Source and product	2002				2003					
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: ²										
Silicon carbide ³	10,000	\$5,300	10,000	\$5,000	10,000	\$5,800	10,000	\$5,500	10,000	\$5,100
Crude aluminum oxide, regular-grade	5,000	1,400	10,000	2,600	5,000	1,400	15,000	4,300	(4)	(5)
United States, production:										
Steel shot and grit	57,400	25,900	53,400	24,300	54,000	24,600	46,500	20,900	49,200	21,900
Other shot and grit ^{c, 6}	267	886	248	831	274	1,180	267	1,000	334	1,190
Total	57,700	26,800	53,700	25,200	54,300	25,800	46,800	21,900	49,500	23,000
United States, shipments:										
Steel shot and grit	57,900	27,000	52,800	24,700	53,900	24,900	52,400	24,600	57,400	27,000
Other shot and grit ^{c, 6}	257	941	256	940	279	1,260	271	1,110	310	1,280
Total	58,200	27,900	53,100	25,600	54,200	26,200	52,700	25,700	57,800	28,300

^cEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Less than 2,500 tons.

⁵Less than \$500,000.

⁶Includes cut wire shot and reclaimed shot and grit from primary producers.